Stormwater Modeling Using the Fate and Transport Model
- Initial Model Runs -

Objectives:
- Learn more about how the model works and what it can do for us
- Get a <u>very</u> rough sense of the relative impact of stormwater on PH sediments, as well as the impact of upstream loading.
- Use this information to help us shape our next steps, such as:
    o What model runs do we want to do next?
    o What data gaps do we need to fill?
    o Where does stormwater have the greatest impact?

Contaminants Being Modeled (for starters):
- PCB (pick one)
- PAH (pick one)
- DDE

Model Settings:
Unless otherwise specified:
- Use the sediment baseline values from the 1999 Sediment Management Plan as a beginning sediment concentration (DEQ will provide)
- Use City's Grid model to get average annual runoff volume from the eastside and the westside (Dawn will also provide coefficients for each eastside/westside cell to represent the proportion of runoff entering that cell – these will be "eyeballed" numbers that have not been validated by the model)
- Run model using average annual runoff and constant contaminant concentrations. We may decide to try seasonal averages or storm "pulses" in later model runs.

Question #1: What does the concentration of a contaminant in stormwater need to be to recontaminate harbor sediments in 50 years?

➢ Use PECs as the target endpoint (i.e., recontamination concentration).
➢ In addition, how long does it take for the sediment concentration to reach equilibrium?

Question #2: How long does it take to recontaminate the sediment if the concentration in stormwater is set at (a) the method detection limit for that contaminant, and (b) an average concentration pulled from one or more other studies that are relevant to this effort?

Question #3: How does the contaminant load coming from upstream affect harbor sediments?

➢ Use upstream concentrations from Round 2 transect data
➢ Run model for 2, 5 and 10 years, or whatever seems appropriate after reviewing initial model runs.
➢ Do a few model runs to test the sensitivity of the system to this load

We also talked about linking up with the Food Web model to see what kind of load it would take to see a signal in the fish, but we'll hold off on that until later.